



**HOSTEL ROOM MANAGEMENT WITH SAFETY USING
PIC16F877A**

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ABSTRACT

This project paper describes the design of Hostel room controller to ensure that in energy efficient and safe from unwelcome intrusion. The PIC was chosen as to control of the system, it is progressed to use output of motion sensor and a keypad input to ensure that when room is empty, the fan and light will switch off and the door locked. When users enter the door will be via password punched on the keypad. The correct password will open the door and motion sensor will switch on the light and fan. The project construct hardware and software development of the hostel management for full fill comfortable for the student without the key just press the password it control by Peripheral Interface Controller (PIC). This model or prototype hostel room management system design also put the motion sensor to switch on the light and fan control by system from the same user interface.

The systems consist of the keypad, liquid crystal display (LCD), motion sensor or motion detector, solenoid, fan and light bulb. LCD will display the character of the welcome note and star (*) for each password enter by user and then the solenoid will open it if the password correct. Motion detector is the action of sensing physical for human body detection in a given area. It can be detected by measuring change in movement of the object in the field of view whether it is 'dark' or 'light' situation [1]. The situation when door it's open the motion detector will detect the human motion and then after few second the fan and light will be automatically switch on.

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CHAPTER 1

INTRODUCTION

1.1 Overview

Hostel room management can be defined as a room or working environment equipped with technology to allow the device and system controlled by automatically. LCD screen and keypad to develop a password door security system. The system will activate the relay for magnetic lock if password keyed in which is preset in the program is correct. When entry the door, the sensor device that detects motion by measuring changes in infrared level emitted by surrounding objects. This motion can be detected and send for a high signal on single I/O pin at microcontroller. And then PIC send high signal to relay, it will be activated relay at fan and lamp so that the lamp and fan will be switch ON. Sensor a used to detect and measure parameter such as ambient temperature, humidity and brightness. The output is then used as an input for a control system. The light bulb and fan will switch OFF when the sensor not detect the movement in 60 seconds it controlled by program.

Hostel room management system has not been commercialized yet in hostel UiTM because it has not been revealed to the hostel management. The system is not only makes student life more convenient and manageable but more importantly the system can create the safety in the room for the student. The advantage of this system is it can save energy electricity when go out from the room and avoid robberies in the hostel. Actually there are many ways to switch ON fan and light bulb before using PIC such as controlled by using button switch manually.

The motion sensor will be the main sensor where it detects the movement in that room. The type of motion sensor, which are area sensor. The sensor will detect the movement within specific area. The difference is that area sensor can detect any movement within